CLAIM AMENDMENTS

1 (Previously Presented). A radio front end comprises:

a transformer having a first winding and a second winding, wherein the first winding is operably coupled to an antenna and the second winding coupled to a power amplifier and a low noise amplifier, wherein the power amplifier is enabled when the radio front end is in a transmit mode and the low noise amplifier is enabled when the radio front end is in a receive mode; and

an adjustable load operably coupled to the second winding, wherein the adjustable load provides a first impedance based on a first impedance selection signal when the radio front end is in a transmit mode and provides a second different impedance based on a second impedance selection signal when the radio front end is in a receive mode such that impedance at the first winding is substantially similar in the transmit mode when the power amplifier is enabled and in the receive mode when the low noise amplifier is enabled.

2 (Original). The radio front end of claim 1, wherein the adjustable load comprises:

a first variable capacitor circuit operably coupled from one node of the second winding to a circuit ground, wherein the first variable capacitor circuit provides a first capacitance value in response to the first impedance selection signal and provides a second capacitance value in response to the second impedance selection signal; and

a second variable capacitor circuit operably coupled from another node of the second winding to the circuit ground, wherein the second variable capacitor circuit provides the first capacitance value in response to the first impedance selection signal and provides the second capacitance value in response to the second impedance selection signal.

3 (Original). The radio front end of claim 1, wherein the adjustable load comprises:

a variable capacitor circuit operably coupled from a first node of the second winding to a second node of the second winding, wherein the variable capacitor circuit provides a first capacitance value in response to the first impedance selection signal and

provides a second capacitance value in response to the second impedance selection signal.

4 (Original). The radio front end of claim 1, wherein the adjustable load comprises:

a first variable inductor circuit operably coupled in series with one node of the second winding, wherein the first variable inductor circuit provides a first inductance value in response to the first impedance selection signal and provides a second inductance value in response to the second impedance selection signal; and

a second variable inductor circuit operably coupled in series with another node of the second winding, wherein the second variable inductor circuit provides the first inductance value in response to the first impedance selection signal and provides the second inductance value in response to the second impedance selection signal.

5 (Original). The radio front end of claim 1, wherein the adjustable load comprises:

a first variable inductance circuit operably coupled from one node of the second winding to a circuit ground, wherein the first variable inductance circuit provides a first inductance value in response to the first impedance selection signal and provides a second inductance value in response to the second impedance selection signal; and

a second variable inductor circuit operably coupled from another node of the second winding to the circuit ground, wherein the second variable inductor circuit provides the first inductance value in response to the first impedance selection signal and provides the second inductance value in response to the second impedance selection signal.

6 (Original). The radio front end of claim 1 further comprises:

determining the load impedance selection signal based on at least one of: impedance matching of load on single-ending winding, output power requirements, and receiver sensitivity.

7 (Original). The radio front end of claim 1 further comprises:

the second winding of the transformer includes a first set of taps and a second set of taps, wherein the first set of taps is coupled to a low noise amplifier and the second set of taps is coupled to a power amplifier; and

wherein the adjustable load includes:

a first adjustable load circuit operably coupled to one tap of the first set of taps, wherein the first adjustable load circuit provides a first portion of the first impedance in response to the first impedance selection signal and provides a first portion of the second impedance in response to the second impedance selection signal;

a second adjustable load circuit operably coupled to a second tap of the first set of taps, wherein the second adjustable load circuit provides a second portion of the first impedance in response to the first impedance selection signal and provides a second portion of the second impedance in response to the second impedance selection signal;

a third adjustable load circuit operably coupled to one tap of the second set of taps, wherein the third adjustable load circuit provides a third portion of the first impedance in response to the first impedance selection signal and provides a third portion of the second impedance in response to the second impedance selection signal; and

a fourth adjustable load circuit operably coupled to a second tap of the second set of taps, wherein the fourth adjustable load circuit provides a fourth portion of the first impedance in response to the first impedance selection signal and provides a fourth portion of the second impedance in response to the second impedance selection signal.

8 (Original). The radio front end of claim 1 further comprises:

a second adjustable load coupled to the first winding, wherein the second adjustable load provides a third impedance in response to the first impedance selection signal and provides a fourth impedance in response to the second impedance selection signal.

9 (Withdrawn). A radio front end comprises:

a transformer having a first winding and a second winding, wherein the first winding is operably coupled to an antenna and the second winding coupled to at least one of a power amplifier and a low noise amplifier; and

an adjustable load operably coupled to the first winding, wherein the adjustable load provides a first impedance based on a first impedance selection signal when the radio front end is in a transmit mode and provides a second impedance based on a second impedance selection signal when the radio front end is in a receive mode such that impedance at the first winding is substantially similar in the transmit mode and in the receive mode.

10 (Withdrawn). The radio front end of claim 9, wherein the adjustable load comprises:

a variable capacitor circuit operably coupled from a first node of the first winding to a second node of the first winding, wherein the variable capacitor circuit provides a first capacitance value in response to the first impedance selection signal and provides a second capacitance value in response to the second impedance selection signal

11 (Withdrawn). The radio front end of claim 9, wherein the adjustable load comprises:

a variable inductor circuit operably coupled in series with one node of the first winding, wherein the variable inductor circuit provides a first inductance value in response to the first impedance selection signal and provides a second inductance value in response to the second impedance selection signal.

12 (Withdrawn). The radio front end of claim 9, wherein the adjustable load comprises:

a variable inductance circuit operably coupled from one node of the first winding to a circuit ground, wherein the variable inductance circuit provides a first inductance value in response to the first impedance selection signal and provides a second inductance value in response to the second impedance selection signal.

13 (Withdrawn). The radio front end of claim 9 further comprises:

determining the load impedance selection signal based on at least one of: impedance matching of load on single-ending winding, output power requirements, and receiver sensitivity.

14 (Withdrawn). The radio front end of claim 9 further comprises:

the second winding of the transformer includes a first set of taps and a second set of taps, wherein the first set of taps is coupled to a low noise amplifier and the second set of taps is coupled to a power amplifier;

a first adjustable load circuit operably coupled to one tap of the first set of taps, wherein the first adjustable load circuit provides a first portion of a third impedance in response to the first impedance selection signal and provides a first portion of a fourth impedance in response to the second impedance selection signal;

a second adjustable load circuit operably coupled to a second tap of the first set of taps, wherein the second adjustable load circuit provides a second portion of the third impedance in response to the first impedance selection signal and provides a second portion of the fourth impedance in response to the second impedance selection signal;

a third adjustable load circuit operably coupled to one tap of the second set of taps, wherein the third adjustable load circuit provides a third portion of the third impedance in response to the first impedance selection signal and provides a third portion of the fourth impedance in response to the second impedance selection signal; and

a fourth adjustable load circuit operably coupled to a second tap of the second set of taps, wherein the fourth adjustable load circuit provides a fourth portion of the third impedance in response to the first impedance selection signal and provides a fourth portion of the fourth impedance in response to the second impedance selection signal.

15 (Withdrawn). The radio front end of claim 9 further comprises:

a second adjustable load coupled to the second winding, wherein the second adjustable load provides a third impedance in response to the first impedance selection

signal and provides a fourth impedance in response to the second impedance selection signal.

16 (Original). A radio frequency integrated circuit (RFIC) comprises:

a radio front end operably coupled to transceiver radio frequency (RF) signals;

a low noise amplifier operably coupled to the radio front end, wherein the low noise amplifier receives inbound RF signals from the radio front end, and wherein the low noise amplifier amplifies the inbound RF signals to produce amplified inbound RF signals;

down conversion module operably coupled to convert the amplified inbound RF signals into inbound baseband signals;

baseband processing module operably coupled to convert the inbound baseband signals into inbound data and to convert outbound data into outbound baseband signals in accordance with a wireless communications protocol;

up conversion module operably coupled to convert the outbound baseband signals into outbound RF signals; and

a power amplifier operably coupled to amplify the outbound RF signals to produce amplified outbound RF signals and to provide the amplified outbound RF signals to the radio front end, wherein the radio front end includes:

a transformer having a first winding and a second winding, wherein the first winding is operably coupled to an antenna and the second winding coupled to at least one of a power amplifier and a low noise amplifier; and

an adjustable load operably coupled to the second winding, wherein the adjustable load provides a first impedance based on a first impedance selection signal when the radio front end is in a transmit mode and provides a second impedance based on a second impedance selection signal when the radio front end is in a receive mode such that impedance at the first winding is substantially similar in the transmit mode and in the receive mode.

17 (Original). The RFIC of claim 16, wherein the adjustable load comprises:

a first variable capacitor circuit operably coupled from one node of the second

winding to

a circuit ground, wherein the first variable capacitor circuit provides a first capacitance value in response to the first impedance selection signal and provides a second capacitance value in response to the second impedance selection signal; and

a second variable capacitor circuit operably coupled from another node of the second winding to the circuit ground, wherein the second variable capacitor circuit provides the first capacitance value in response to the first impedance selection signal and provides the second capacitance value in response to the second impedance selection signal.

18 (Original). The RFIC of claim 16, wherein the adjustable load comprises:

a variable capacitor circuit operably coupled from a first node of the second winding to a second node of the second winding, wherein the variable capacitor circuit provides a first capacitance value in response to the first impedance selection signal and provides a second capacitance value in response to the second impedance selection signal

19 (Original). The RFIC of claim 16, wherein the adjustable load comprises:

a first variable inductor circuit operably coupled in series with one node of the second winding, wherein the first variable inductor circuit provides a first inductance value in response to the first impedance selection signal and provides a second inductance value in response to the second impedance selection signal; and

a second variable inductor circuit operably coupled in series with another node of the second winding, wherein the second variable inductor circuit provides the first inductance value in response to the first impedance selection signal and provides the second inductance value in response to the second impedance selection signal.

20 (Original). The RFIC of claim 16, wherein the adjustable load comprises:

a first variable inductance circuit operably coupled from one node of the second winding to a circuit ground, wherein the first variable inductance circuit provides a first inductance value in response to the first impedance selection signal and provides a second inductance value in response to the second impedance selection signal; and

a second variable inductor circuit operably coupled from another node of the second winding to the circuit ground, wherein the second variable inductor circuit provides the first inductance value in response to the first impedance selection signal and provides the second inductance value in response to the second impedance selection signal.

21 (Original). The RFIC of claim 16, wherein the radio front end further comprises:

determining the load impedance selection signal based on at least one of: impedance matching of load on single-ending winding, output power requirements, and receiver sensitivity.

22 (Original). The RFIC of claim 16, wherein the radio front end further comprises:

the second winding of the transformer includes a first set of taps and a second set of taps, wherein the first set of taps is coupled to a low noise amplifier and the second set of taps is coupled to a power amplifier; and

wherein the adjustable load includes:

a first adjustable load circuit operably coupled to one tap of the first set of taps, wherein the first adjustable load circuit provides a first portion of the first impedance in response to the first impedance selection signal and provides a first portion of the second impedance in response to the second impedance selection signal;

a second adjustable load circuit operably coupled to a second tap of the first set of taps, wherein the second adjustable load circuit provides a second portion of the first impedance in response to the first impedance selection signal and provides a second portion of the second impedance in response to the second impedance selection signal;

a third adjustable load circuit operably coupled to one tap of the second set of taps, wherein the third adjustable load circuit provides a third portion of the first impedance in response to the first impedance selection signal and provides a third portion of the second impedance in response to the second impedance selection signal; and

a fourth adjustable load circuit operably coupled to a second tap of the second set of taps, wherein the fourth adjustable load circuit provides a fourth portion of the first impedance in response to the first impedance selection signal and provides a fourth

portion of the second impedance in response to the second impedance selection signal.

23 (Original). The RFIC of claim 16, wherein the radio front end further comprises:

a second adjustable load coupled to the first winding, wherein the second adjustable load provides a third impedance in response to the first impedance selection signal and provides a fourth impedance in response to the second impedance selection signal.

24 (Withdrawn). A radio frequency integrated circuit (RFIC) comprises:

a radio front end operably coupled to transceiver radio frequency (RF) signals;

a low noise amplifier operably coupled to the radio front end, wherein the low noise amplifier receives inbound RF signals from the radio front end, and wherein the low noise amplifier amplifies the inbound RF signals to produce amplified inbound RF signals;

down conversion module operably coupled to convert the amplified inbound RF signals into inbound baseband signals;

baseband processing module operably coupled to convert the inbound baseband signals into inbound data and to convert outbound data into outbound baseband signals in accordance with a wireless communications protocol;

up conversion module operably coupled to convert the outbound baseband signals into outbound RF signals; and

a power amplifier operably coupled to amplify the outbound RF signals to produce amplified outbound RF signals and to provide the amplified outbound RF signals to the radio front end, wherein the radio front end includes:

a transformer having a first winding and a second winding, wherein the first winding is operably coupled to an antenna and the second winding coupled to at least one of a power amplifier and a low noise amplifier; and

an adjustable load operably coupled to the first winding, wherein the adjustable load provides a first impedance based on a first impedance selection signal when the radio front end is in a transmit mode and provides a second impedance based on a second impedance selection signal when the radio front end is in a receive mode such that

impedance at the first winding is substantially similar in the transmit mode and in the receive mode.

25 (Withdrawn). The RFIC of claim 24, wherein the adjustable load comprises:

a variable capacitor circuit operably coupled from a first node of the first winding to a second node of the first winding, wherein the variable capacitor circuit provides a first capacitance value in response to the first impedance selection signal and provides a second capacitance value in response to the second impedance selection signal

26 (Withdrawn). The RFIC of claim 24, wherein the adjustable load comprises:

a variable inductor circuit operably coupled in series with one node of the first winding, wherein the variable inductor circuit provides a first inductance value in response to the first impedance selection signal and provides a second inductance value in response to the second impedance selection signal.

27 (Withdrawn). The RFIC of claim 24, wherein the adjustable load comprises:

a variable inductance circuit operably coupled from one node of the first winding to a circuit ground, wherein the variable inductance circuit provides a first inductance value in response to the first impedance selection signal and provides a second inductance value in response to the second impedance selection signal.

28 (Withdrawn). The RFIC of claim 24, wherein the radio front end further comprises:

determining the load impedance selection signal based on at least one of: impedance matching of load on single-ending winding, output power requirements, and receiver sensitivity.

29 (Withdrawn). The RFIC of claim 24, wherein the radio front end further comprises:

the second winding of the transformer includes a first set of taps and a second set of taps, wherein the first set of taps is coupled to a low noise amplifier and the second set

of taps is coupled to a power amplifier;

a first adjustable load circuit operably coupled to one tap of the first set of taps, wherein

the first adjustable load circuit provides a first portion of a third impedance in response to the first impedance selection signal and provides a first portion of a fourth impedance in response to the second impedance selection signal;

a second adjustable load circuit operably coupled to a second tap of the first set of taps, wherein the second adjustable load circuit provides a second portion of the third impedance in response to the first impedance selection signal and provides a second portion of the fourth impedance in response to the second impedance selection signal;

a third adjustable load circuit operably coupled to one tap of the second set of taps, wherein the third adjustable load circuit provides a third portion of the third impedance in response to the first impedance selection signal and provides a third portion of the fourth impedance in response to the second impedance selection signal; and

a fourth adjustable load circuit operably coupled to a second tap of the second set of taps, wherein the fourth adjustable load circuit provides a fourth portion of the third impedance in response to the first impedance selection signal and provides a fourth portion of the fourth impedance in response to the second impedance selection signal.

30 (Withdrawn). The RFIC of claim 24, wherein the radio front end further comprises:

a second adjustable load coupled to the second winding, wherein the second adjustable load provides a third impedance in response to the first impedance selection signal and provides a fourth impedance in response to the second impedance selection signal.